



DEPARTMENT OF THE ARMY
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February 3, 2015

Mr. Brad Vann, Remedial Project Manager
U.S. Environmental Protection Agency Region 7
11201 Renner Boulevard
Lenexa, KS 66219

Dear Mr. Vann:

This letter summarizes the U.S. Army Corps of Engineers' (USACE) assessments of Isolation Barrier alternatives proposed by the Responsible Parties (RPs) for the West Lake Landfill property in Bridgeton, Missouri. This summary is based upon USACE's qualitative assessment of information conveyed by the RPs and documented in our August 25, 2014, report titled "*Isolation Barrier Alignment Alternatives Assessment West Lake Landfill, Bridgeton, Missouri*". This summary is also based upon review of the RP's October 10, 2014, report titled "*Isolation Barrier Alternatives Analysis West Lake Landfill Superfund Site*".

Summary of Assessments

The RPs have proposed the following Isolation Barrier alternatives:

- No Action
- Inert Solid Wall Barrier Along Alignment 1
- Inert Solid Wall Barrier Along Alignment 3
- Heat Extraction Barrier Along Alignment 1

Following is a summary of USACE's assessment associated with each alternative the RPs presented. Note that because the RPs did not provide design drawings or complete data supporting their analysis of the alternatives, a full technical assessment could not be accomplished. Therefore, the assessment completed by USACE was limited to a qualitative assessment of the information provided. For additional information regarding USACE's assessment of the proposed alternatives and challenges, please refer to USACE's "*Isolation Barrier Alignment Alternatives Assessment West Lake Landfill, Bridgeton, Missouri*" report dated August 25, 2014, and USACE's comments on the RPs' "*Isolation Barrier Alternatives Analysis West Lake Landfill Superfund Site*" report transmitted on November 6, 2014, both attached to this letter.

No Action: Based upon information provided in the RP's October 10, 2013 "*Isolation Barrier Alternatives Analysis West Lake Landfill Superfund Site*", it is USACE's assessment that the No Action alternative proposed is not adequately supported. The report provides justification for this alternative, in part, based upon thickness of the waste material and the anticipated heat dissipation that would occur if the Subsurface Smoldering Event (SSE) reaches the shallower depth waste material in Area 1 and on radon flux calculations and modeling. While USACE acknowledges that more heat dissipation may occur, there were concerns that the radon flux modeling presented did not use all currently available data nor did it model exposures of off-site receptors.

Inert Solid Wall Barrier: Installation of a solid wall barrier presents a number of challenges that impact various stakeholder interests. While mitigation efforts can be implemented to successfully mitigate many of these challenges, they still carry some level of risk, depending on how they are mitigated. The challenges with an inert solid wall barrier include:

- a. Construction requires excavation of large amounts of degraded waste. The exposure of the degraded waste attracts birds, which can cause an impact hazard to air traffic approaching Lambert International Airport. Additionally, the degraded wastes will exhibit significant putrescent odor, which will be carried offsite and impact the quality of life of the surrounding community for the duration of construction.
- b. It is known that Radiologically Impacted Material (RIM) will be encountered if the barrier wall is constructed along Alignment 1 and there is a potential it will be encountered along Alignment 3, although RIM has not been fully characterized along this alignment. Excavating, staging, sampling, and transporting RIM increases the safety risk to on site workers. Offsite transportation of RIM by truck of the volume of wastes anticipated will cause a significant increase in truck traffic along the haul route. Increased truck traffic increases the potential risk for vehicular accidents as trucks pull in and out of the landfill. There is also a higher potential for airborne RIM, which can potentially be a safety issue for on and off-site receptors.
- b. Depending upon the construction approach, installation of a solid wall barrier risks introducing atmospheric air into the subsurface. This can increase the subsurface oxygen levels and potentially make conditions favorable for a new subsurface heating event in the North Quarry.

- c. Construction of a solid wall barrier at Alignment 3 will impact the gas and leachate collection system infrastructure currently in place at the North Quarry. This could lead to an imbalance of landfill gases and potentially create a higher risk of a heating event in the North Quarry.
- d. Long design and construction durations are required to implement a solid wall barrier due to the multiple challenges at this site.
- e. Neither solid wall barrier alignment option currently ensures there will be no RIM remaining on the south side of the barrier with the potential of being exposed to the existing SSE. The amount of RIM remaining on the south side of the barrier cannot be estimated until the extent of RIM has been determined. Subsequently, the potential exposure risk associated with leaving RIM in place cannot be estimated until the extent of contamination is determined.

Heat Extraction Barrier: The heat extraction barrier proposed by the RPs includes a closed loop system that would circulate cooled water through a system of wells to remove heat from the surrounding waste, reducing the temperature to a point that prevents propagation of the SSE. Heat extraction appears to offer advantages that are beneficial to all stakeholders because no excavation would be conducted, which eliminates concerns of odor, bird hazards, and handling of RIM. However, there is currently a lack of data available to demonstrate this is a viable alternative for containing an SSE. The RPs converted a gas extraction well to a heat extraction well to test the feasibility of this approach. Reportedly, based upon favorable results, MDNR approved the RP's request to expand this heat extraction pilot to additional gas extraction wells. However, the information provided to date is insufficient to evaluate whether the proposed heat extraction option will be effective in achieving the temperature reduction in the surrounding waste that would be required to prevent propagation of an SSE. USACE has provided EPA with a list of data that would be required to properly evaluate the effectiveness of a heat extraction system.

Again, further discussion of these items is included in USACE's "*Isolation Barrier Alignment Alternatives Assessment West Lake Landfill, Bridgeton, Missouri*" report and in USACE's comments on the RPs' "*Isolation Barrier Alternatives Analysis West Lake Landfill Superfund Site*" report. If you have questions, please contact Robyn Kiefer at 816-389-3615.

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Respectfully,

Scott E. Young, PMP
Chief, Environmental Programs Branch

Jason M. Leibbert, P.E.
Chief, Environmental Engineering Branch

Enclosures